Achieving superior service assurance for high-quality patient experience in healthcare

From the time a patient enters a healthcare organization, a wide range of voice, video and data applications engage to help create a satisfactory patient experience, from seamless admissions and targeted treatments to smooth transitions of care and accurate billings. Consumers and clinicians want – and expect – easy access to health records and other pertinent patient data, in all available formats and at all times. Any disruptions in network or application performance can carry serious, even critical, consequences.

To reduce the risk of an application slowdown or a full-blown network outage, healthcare IT leaders want higher levels of service assurance in both wired and, increasingly, wireless environments. They are deploying state-of-the-art technologies to gain greater visibility to all network traffic and application usage and using that intelligence to proactively triage before those issues can compromise the high quality of service now needed for electronic health records (EHRs) and imaging, not to mention HL7 performance.

GAINING MORE VISIBILITY TO NETWORK ACTIVITY

The risks from periodic network degradation have never been higher or more pervasive, thanks to the healthcare industry's ongoing digital transformation. "The amount of services that have gone electronic has dramatically increased in the last decade within healthcare," said Eileen Haggerty, senior director for enterprise business operations at NETSCOUT Systems. These include data-rich services that support patient care, such as EHRs, e-scripts and digital imaging.

"This typically means working with different vendors supporting different technologies," she noted. "That multi-vendor nature may introduce interoperability issues, and creates a compelling juncture for a variety of degradations or downtime."

Network downtime also impacts HIPAA requirements for availability and security, she added, whether due to a security breach or a hefty database backup. That's why Haggerty recommends organizations first and foremost gain full visibility of all system and application activities.

One way to gain such visibility – and respond in real time to any anomalies – is with the NETSCOUT nGeniusONE® Service Assurance platform for both wired and wireless environments. Providing comprehensive network and application performance management, the highly scalable nGeniusONE platform is powered by patented Adaptive Service Intelligence™ technology, which provides ongoing analyses of sessions, packets and situations. The solution delivers real-time performance metrics for everything from traffic and application utilization patterns to network errors and HL7 service. As its name suggests, the technology "learns" as it continuously scans metadata to quickly root out problems and their impact on underlying service dependencies.

AVOIDING DOWNTIME WITH ADVANCED PLANNING

In addition to adopting the best technologies for optimal network and application performance, healthcare organizations need a sound communications strategy and a framework to follow when systems changes occur, both planned and unforeseen.

As director of IT infrastructure and operations at Tucson Medical Center (TMC) in Arizona, Susan Snedaker had to dramatically broaden her organization's IT backbone to accommodate a new 200,000-square-foot surgery tower and a new multi-function facility in another part of town. The expanded use of their EHR and associated technologies created the potential for serious network and application usage bottlenecks.

However, TMC never experienced application service outage, and systems-related outages still remain rare due in large part to the ability to virtualize and build in redundancy. Today, the medical center's biggest challenge is the growing complexity of the network architecture and the systems and devices that rely on the network.

"We have a structured and orderly process for managing all our applications. In all cases, we document well and plan well. So if something goes wrong, it's usually found before go live," she said.

Snedaker believes a strong change management mindset and well-established, written processes drive high reliability and relatively short downtimes. So does striving for simplicity and collaborating on problem-solving.

"The one-offs are going to happen; it's just the nature of the work we do," she pointed out. "But to the extent that we can plan things, reduce that complexity and reduce that rush to get something done – that almost always improves outcomes."

RESPONDING TO MEET AN INCREASINGLY MOBILE WORLD

Along with applied processes and procedures, healthcare organizations can leverage today's technologies to better manage a comprehensive service delivery strategy focused on streamlining and simplifying IT operations, reducing operational costs and quickly resolving IT issues before they impact patient care.

Increasingly, these IT service issues involve wireless networks that now must accommodate a more mobile healthcare workforce and consumer demand for mobile apps. Again, healthcare IT teams are turning to technology to deliver that service assurance. NETSCOUT, for instance, provides real-time wireless network and application analyses to rapidly root out the cause of both wired and wireless performance issues. It can then help IT shops quickly troubleshoot WiFi performance issues, be it configuration problems, co-channel interference or slow clients – including those working within a 802.11ac WLAN space.

"The best strategy for managing application performance has always been knowing enough to make the right decisions, and NETSCOUT focuses on providing at-a-glance metrics and holistic status visibility of business services in healthcare IT to that end," explained Robert Wright, a senior systems engineer at NETSCOUT.

Wright noted that today's healthcare organizations have access to technologies that greatly improve network visibility and reduce the time it takes to perform "service triage." These products, however, are best leveraged when everyone knows why they are needed, as they streamline overall network performance problem solving.

"When we start to address sluggish performance, we need to make sure we engage our audiences and articulate what this truly means to the caregiver," he said. "It can be easy to underestimate the power the IT practitioner has on the patient, every single day they do their job."

TACKLING SLUGGISH APPLICATION PERFORMANCE

One healthcare organization that understands that impact on the patient experience is the University of Virginia (UVA) Health Systems.

"We are constantly chasing improved performance as the world continues to get used to higher speeds for everything," said Leigh Williams, administrator of business systems for the 600-bed, Charlottesville, Va.-based healthcare system. "From turnaround times for consumer products or shopping online, everyone's now used to a quick, seamless experience, and they expect that at work as well."

Constant collaboration – and communication – between UVA's applications, infrastructure, security and analytics teams helps minimize bottlenecks that can slow access to medical records and other vital data. So is adopting tools that allow IT teams to best monitor network traffic for inappropriate access, volume or timing.

"Today, the data is all connected," Williams said. "Being mindful and knowing the footprint and managing it correctly is all-important."

HL7 AND REDUCING INTEROPERABILITY ROADBLOCKS

NETSCOUT'S Eileen Haggerty earlier mentioned the challenge of application interoperability, given the proliferation of myriad vendors' software and appliances residing on a typical healthcare network. One increasingly popular option to bridge those disconnects and provide better application service: Health Level 7 (HL7).

Patients and clinicians want reliable access to electronic patient records, whether it's a surgeon calling up CAT scan results or a patient questioning a billing statement. "A lot of consumers get used to fast turnarounds, and when that doesn't happen, or they have to make multiple phone calls to get something scheduled or resolved, their satisfaction level drops dramatically," explained Brian Philips, chief solutions architect at NETSCOUT.

He noted the constant pressure physicians face to accurately diagnose and properly treat patients the first time, or risk financial penalties. At the same time, increased workloads require more efficient workflows. When sharing of records are held up due to interoperability or performance assurance issues, frustrations run high. "The backlash is directed at IT," Philips said. "Patients and caregivers don't want to know how hard it is, or that the vendors are using disparate systems. They just want everything to work."

One way to prevent operational and performance issues between dissimilar systems is by using HL7, which is added to allow different systems to exchange patient information with each other using a common framework. As added assurance, providers like NETSCOUT offer healthcare-focused service assurance solutions that reduce Mean Time to Repair (MTTR) for EHR, e-prescription and HL7 performance degradations before they become a service outage.

THE IMPACT OF IOT ON NETWORK RELIABILITY

Another reason IT backbones are taking on more of a burden is the growing use of the Internet of Things (IoT) within healthcare. By providing patients with wearables and smart devices to monitor at-home treatment and compliance, IoT can strain already stretched connectivity and performance issues. Additionally, applications themselves are evolving, whether it's by adding features like hands-free voice operation interfaces to existing tools or moving data assets to the cloud. And, of course, more patients and providers are using mobile devices to access information and schedule appointments using web portals.

IoT is just the latest example of technologies and platforms that have the potential to both improve the quality of patient care – and add to the complexity of existing healthcare IT ecosystems. It certainly won't be the last, which is why planning in advance for bigger application pipelines and bandwidths is needed now.

Regardless of what approach a healthcare organization chooses to assure network services run optimally, everyone agrees today's cutting-edge network intelligence tools go a long way in creating a more holistic view of an organization's IT portfolio and data footprint. nGeniusONE provides the tools needed to proactively monitor all network activity and anomalies. The metrics and key performance indicators developed using NETSCOUT's patented technology can then be shared with all lines of business, so together an organization grows a more robust and resilient network backbone.

"We live in a time of uncertainty. But it's an absolute certainty that technology needs to lend a hand in allowing us to drive down costs and to improve productivity," UVA's Williams said. "It doesn't need to be done more, it needs to be done better. And technology is key to doing things better."